

Text newly added to this Office Action is underlined so as to distinguish from text carried over from the previous Office Action.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 and 9-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of copending Application No. 11/247,949 in view of Aboutboul et al patent 3,794,712 and Addy patent 3,629,150 . Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims and claims of co-pending '949 commonly recite common processes of drying solids initially wet with water within interstitial spaces, by exchanging a first solvent with the water followed by exchanging a 2nd solvent with the 1st solvent. Aboutboul (col 1, ln 63-70) and Addy (col 1, ln 60-67) both teach that many solids initially wet with water are dewatered to remove both free interstitial water and water absorbed on the solids.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teich et al patent 6,438,867 in view of DeGroot et al patent 7,053,036 and/or Gray patent 6,743,300 and/or Ziegler et al patent 6,017,505, and additionally in view of Aboutboul et al patent 3,794,712 and Addy patent 3,629,150.

For claims 1 and 13, Teich et al disclose drying solids that are initially wet with water in the interstitial spaces between the solids, by displacing the water with a 1st exchanging solvent that is water-miscible with a heat of vaporization lower than water, such as alcohol, followed by displacing with a 2nd drying solvent having a lower heat of vaporization lower than the alcohol, such as ether or other diverse organic drying fluids (see especially column 3, lines 14-29 and 45-67; column 4, lines 25-35 and column 7, lines 25-30). Column 4, lines 27-33 clarify that the 1st exchanging solvent may be an alcohol. Column 4, lines 44-63 clarify that ethers are among the

optional 2nd drying solvents that may be employed. The initial water-wet solids are comprised in an aqueous gel-containing feed stream that is fed in counter-current through a moving bed (column 3, lines 30-39). At column 4, lines 25-34 it is stated that alcohol is miscible for the water as a 1st drying fluid and may be in turn exchanged for an even more suitable 2nd drying fluid. The various alcohols and other polar liquids listed as the displacing/drying fluids at column 4, lines 48-64 have the inherent properties of being miscible with each other and with water, or mutually being soluble, hence qualify as "solvents" as instantly claimed, (also if necessary, see page 5, lines 4-10 of the instant Specification).

The claims differ in explicit recitation of the 2nd fluid having an even lower heat of vaporization than the 1st drying fluid (alcohol). Alcohol (1st drying fluid) is known to have a lower heat of vaporization than the water. It is stated at column 4, lines 60-61 that mixtures of fluids may be employed, at lines 64-67 that halogenated hydrocarbons may be employed but are subject to environmental and choice of material concerns and at column 4, line 67-column 5, line 2 that materials with high critical temperatures, hence high heats of vaporization, are avoided.

DeGroot et al teach advantages of employing of the halogenated hydrocarbon of n-propyl bromide as a drying solvent of being non-flammable, non-corrosive and having a high evaporation rate thus ensuring rapid drying, and concerning drying of a wide range of substrates including miniaturized components that are porous with small cracks, crevices and holes (column 6, lines 23-32 and column 7, lines 44-58). At column 7, lines 54-55 it is stated that the drying solvent has a very high evaporation rate and ensures rapid drying of materials. At column 7, lines 35-41 this particular chemical is taught as being environmentally desirable with respect to the Clean Air act and OSHA regulations and that it does not cause cancer.

Gray also teaches use of n-propyl bromide as a 2nd solvent employed in 2-step processes for cleaning and drying composite materials (column 1, lines 12-17; column 4, lines 44-60) and suggest that such 2nd solvent is among solvents that are readily recoverable (column 1, lines 41-45). It would have been obvious to one of ordinary skill in the art to have utilized a drying fluid material or mixture of materials comprising n-propyl bromide [specifically required in claims 5 and 6] as the (or one of the) 2nd drying solvent in the Teich et al process, due to its advantages of being environmentally desirable, non-flammable, non-corrosive and having a high evaporation rate and/or due to its being readily recoverable.

The claims now all differ in requiring that not only water present in the interstitial spaces, but also water absorbed by the solids are present prior to the displacing steps. Teich is directed to removing water from particulate solids that may be comprised in gels or hydrogels such as silicic acid or silica gels (col 3, ln 43-58). Aboutboul teach that particulate silica gels or hydrogels that have been dewatered initially include water strongly absorbed on the silica gel due to hydrogen bonding (col 1, ln 63-67). Also, Addy teaches that when such gels are dewatered or dehydrated, not only the free water, but also adsorbed water must be removed (col 1, ln 60-col 2, ln 18). It would have been additionally obvious to have displaced not only the free water but also the absorbed or adsorbed water from the Teich gels, so as to prepare a product more suitable for end uses such as in adsorbent compositions or in fluidized beds.

For dependent claims: for claim 2, and also independent claim 13; Teich et al also disclose a subsequent heating step to remove residual fluids and solvents (column 7, lines 45-48); for claims 3 and 4, Teich disclose use of methanol or ethanol (column 4, line 53); for claim 7, use of ether is found at column 4, lines 54 and 61-63 where environmental conditions permit;

for claims 11-14, column 4, lines 27-33 clarifies that the 1st exchanging solvent may be an alcohol and column 4, lines 44-63 clarifies that ethers are among the optional 2nd drying solvents that may be employed, obtaining of pure alcohol as the solvent employed for the exchanging or drying solvent is inferred by column 4, lines 30-32 that states the water originally present may be exchanged wholly for alcohol rather than by an alcohol/water mixture as in column 5, lines 35-38.

Claims 9-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teich et al patent 6,438,867 and additionally in view of Aboutboul et al patent 3,794,712 and Addy patent 3,629,150 in view of DeGroot et al patent 7,053,036 and/or Gray patent 6,743,300 as applied to claims 1-8 and 13 above, and in view of Ziegler et al patent 6,017,505.

These claims also appear to differ in requiring solvent recovery and recycling as relatively pure products. Gray teaches recovery of alcohol and bromide solvents employed in cleaning and drying processes (column 1, lines 41-45; column 2, lines 22-26; column 4, lines 41-60).

It is now also noted that Teich et al concern drying of silica gels or other gels (column 3, lines 43-54). Ziegler concerns drying of aerogels so as to replace water with alcohols and other water-miscible solvents and other solvent mixtures, followed by solvent recovery and re-cycling (column 1, lines 10-36 and column 4, lines 25-53 with column 6, lines 10-18 concerning recycling of alcohol solvent by distillation). It would have been also obvious to recover the solvents employed in Teich et al as taught by Gray and Ziegler, to facilitate continuous system processing on an industrial scale and for purposes of material conservation. Regarding

percentage of purity of solvents recovered, Gray teaches that they are restored to “their starting compositions” (see column 2, line 26).

For claim 16, use of distillation to recover displacing/drying solvents is taught in Gray at column 5, lines 10-39.

For claims 11-15 and 17, one or more solvent extraction exchanging/drying solvent recovery steps is suggested in Gray at column 8, lines 29-45.

Claims 8 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8 would distinguish in view of recitation of the second drying solvent being MTBE or ETBE.

Claim 18 and claims dependent therefrom remain distinguished .

Claim 18 would remain distinguish in view of recitation of the material having interstitial spaces initially filled with water being solids from a beer stream.

Applicant's arguments filed on 09/14/2009 have been fully considered but they are not persuasive.

It is argued that the gel or hydrogel particles in Teich are inherently not capable of absorbing water, since Teich establishes that the particle properties of density and thermal conductivity are not impacted and that shrinkage of the particles does not occur. In conclusion, it is submitted that such particle properties are independent of presence of free or sorbed water or water/moisture of any kind. The now additionally applied prior art teaches that the silica gel or

hydrogel solids of Teich inherently strongly sorbs a portion of free or other water that is initially present in the manufacture of the gel prior to water displacement.

It has been argued that Teich et al teaches a moving bed, or countercurrent application containing particles rather than a fluid feed stream and fail to suggest drying of interstitial spaces between spaces of solids. However, although the moving particle bed of Teich qualifies as a form of moving stream that proceeds from a 1st arbitrary feed point to a 2nd arbitrary destination point; the water in such stream is necessarily between the particles of the moving bed or stream. Column 3, line 24 state that water is also in the particles, hence 'interstitial'. Column 5, lines 39-50 state of Teich state that the stream of particles circulates in definite directions by use of a pump. The claims do not require the particles or solids being stationary or in any way preclude any form of movement.

The argument that Teich only teach a single fluid that is suitable for drying, thus does not teach more than one drying fluid or solvent, is herein repeated.. It is submitted in summary, that Teich at column 3, lines 14-27 and column 7, lines 25-30, discloses a step c) of "exchanging" the water in the particles and water of the solvent or wash stream containing the particles for a 1st "fluid" and then in step d) drying the fluid-containing particle stream, with such drying being comprising contact with a stream containing drying solvent fluid (claim 8 at column 12 of Teich). Since the exchanging 1st fluid results in exchange or removal of water, this defines an additional 'drying' step. Although, in Teich (col 7, ln 25-30), the first fluid is designated "not fluid suitable for drying", it nevertheless is also designated a fluid "exchanged", hence a 1st displacing fluid.

It is argued that Teich does not recite solvents having progressively lower heats of vaporization. However, column 4 of Teich gives a wide array of possible exchange and drying fluids having widely varying heats of vaporization and other physical chemistry properties, while the applied teaching references are more drawn to actual discussions of such properties.

It is argued with respect to claim 13 that Teich does not suggest a heating step. Heating of drying fluid is explicitly disclosed at column 7, lines 45-48 of Teich while column 4, lines 54 list ethers as drying fluids.

Arguments that none of Gray, Zeigler or Degroot recite use of both 1st and 2nd solvents for water displacement or drying are not particularly germane, since these teaching references are not relied upon for use of sequential displacing or drying solvents.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at his direct government telephone number of 571-272-1140. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM to 12:30 PM and 2:00 PM to 6:00 PM.

Additionally, the examiner's supervisor, Duane Smith, of Technology Center Unit 1797, can be reached at 571-272-1166.

The formal facsimile phone number, for official, formal communications, for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD
10/27/2009
/Joseph W. Drodge/
Primary Examiner, Art Unit 1797